

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JEFFREY MORRIS COGEN
and
SANDRA GERMAINE MAKI

Appeal No. 2001-0752
Application No. 09/084,680

ON BRIEF

Before WILLIAM F. SMITH, PAWLIKOWSKI, and POTEATE, **Administrative Patent Judges**.

POTEATE, **Administrative Patent Judge**.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1-7, which are all of the claims in the application.

Claim 1 is representative of the subject matter on appeal and is reproduced below:

1. A coaxial cable construction comprising
 - (i) an inner electrical conductor comprising a single electrical conductor or a core of two or more electrical conductors;
 - (ii) dielectric insulation comprising an inert gas or air and a solid, said solid comprising (a) a polymer selected from the group consisting of polyethylene, polypropylene, fluoropolymers, and mixtures of two or more of said polymers and (b) an alkylhydroxyphenylalkanoyl hydrazine; and
 - (iii) an outer electrical conductor.

The references relied upon by the examiner are:

Boysen	3,968,463	July 6, 1976
Abrams et al. (Abrams)	4,139,936	Feb. 20, 1979
Keogh et al. (Keogh)	5,453,322	Sept. 26, 1995

GROUND OF REJECTION

Claims 1-7 stand rejected under 35 U.S.C. § 103 as unpatentable over Boysen in view of Keogh and Abrams.

We reverse.

BACKGROUND

Coaxial cable is generally comprised of an inner conductor, such as copper or aluminum, an outer conductor which

may be aluminum foil with aluminum or copper braid, and a dielectric insulation layer positioned therebetween.

Specification, page 1. Signal attenuation in coaxial cables is a function of dissipation factor in the dielectric constant of the dielectric layer. *Id.* It is known in the art to utilize polyethylene as dielectric insulation in coaxial cable since polyethylene has a low dielectric constant and very low dissipation factor. *Id.*, pages 1-2. In applications which require transmission of an electrical signal with as little loss of signal attenuation as possible, it is also known to replace a portion of the dielectric insulation material with a gas such as nitrogen or argon. *Id.*, page 2.

The dielectric layer in coaxial cable may further include an antioxidant to prevent loss of physical properties over time which are caused by oxidative degradation. *Id.* A drawback of using these antioxidants is that they have a negative impact on the dissipation factor of the insulation, which adversely affects cable electrical properties. *Id.* Since polarity was believed to be a cause of these adverse affects, it was known in the art to use non-polar antioxidants. *Id.*

According to the appellants, they have invented a coaxial cable which is both thermally stable over long periods of time and has a low dissipation factor. *Id.*, page 3.

DISCUSSION

The initial burden of presenting a *prima facie* case of obviousness rests on the examiner. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The examiner relies on Boysen as disclosing the invention as claimed with the exception of the use of an alkylhydroxyphenylalkanoyl hydrazine.¹ *Id.*, page 2. The examiner relies on Keogh for a teaching of a telephone cable comprising electrical conductors surrounded by a polymeric insulator comprising polyethylene and alkylhydroxy-

¹The examiner also notes that Boysen does not disclose 1,2-bis(3,5-di-tert-butyl-4-hydroxy-hydrocinnamoyl)hydrazine or that the dielectric is a disc and air design. Neither of these features is recited in independent claim 1. Accordingly, we do not consider the Abrams patent which was relied on for a disclosure of a coaxial cable comprising disc or bead dielectric spacers. See Final Rejection, Paper No. 7, mailed September 9, 1999, pages 2-3.

phenylalkanoyl hydrazine. **Id.** According to the examiner, "[a]t the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the alkylhydroxyphenyl-alkanoyl . . . of Keogh with the polyethylene based material of Boysen . . . to prevent environmental degradation, reduce risk of water penetration, provide good mechanical and electrical properties and lower electrical dissipation." **Id.**, page 3.

Where an obviousness determination is based on a combination of prior art references, there must be some "teaching, suggestion or incentive supporting the combination." **In re Geiger**, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987). "[T]he factual inquiry whether to combine references must be thorough and searching." **McGinley v. Franklin Sports, Inc.**, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). It is impermissible to conclude that an invention is obvious based solely on what the examiner considers to be basic knowledge or common sense. **See In re Zurko**, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). Thus, the burden is on the examiner to identify concrete evidence in the record to support his con-

clusion that it would have been obvious to modify the teachings of the cited references to achieve the claimed invention. **See id.; In re Kotzab**, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000). In the present case, the examiner has simply failed to meet this burden.

As noted by appellants, Boysen specifically teaches that the antioxidants utilized in his coaxial cable are "**non-polar** compounds." Appeal Brief, Paper No. 11, received May 3, 2000, page 2 (referencing Boysen, column 4, lines 23-26). See Boysen, column 5, line 1. Keogh's alkylhydroxyphenylalkanoyl hydrazines are **polar** compounds. Appeal Brief, page 2. As further pointed out by appellants, the primary objective in Keogh was to find antioxidants which would not be extracted from the cable insulation by a surrounding filler grease. **Id.** See Keogh, column 1, lines 48-52. Coaxial cable does not contain grease and preventing extraction of antioxidants from insulation by a grease would not, therefore, be of concern to one of ordinary skill in the art in the design of a coaxial cable. See Appeal Brief, page 2.

Although the examiner presents reasons in support of his proposed combination, he fails to explain why one of ordinary skill in the art, given Boysen's express teaching that the antioxidants used in his coaxial cable are **non-polar** compounds, would have been motivated to use a **polar** antioxidant based on Keogh's disclosure of using alkylhydroxyphenylalkanoyl hydrazine in a telephone cable having a structure which differs from that of a coaxial cable. Moreover, the examiner does not identify any support in the prior art for his proposed motivation to combine the reference teachings. Thus, it is clear that the examiner's rejection can only be based on improper hindsight reasoning. ***In re Fine***, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.")

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Accordingly, we conclude that the examiner has failed to establish a ***prima facie*** case of obviousness and the rejection is reversed. Because we reverse for failure to establish a ***prima facie*** case of obviousness, we need not consider appellants' evidence of unexpected results. ***See id.***, 837 F.2d at 1076, 5 USPQ2d at 1600.

REVERSED

WILLIAM F. SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
BEVERLY PAWLIKOWSKI)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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LINDA R. POTEATE)	
Administrative Patent Judge)	

LRP:psb

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